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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/086,363 | 03/04/2002 | Takashi Hashimoto | 027260-518 | 2704 |

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| EXAMINER | |
|---|---|
| FUREMAN, JARED | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2876 | |

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/086,363 | HASHIMOTO ET AL. | |
| | Examiner | Art Unit | |
| | Jared J. Fureman | 2876 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6 and 9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-16* is/are allowed.

6)☒ Claim(s) *1-6 and 9-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

Receipt is acknowledged of the amendment, filed on 5/26/2006, which has been entered in the file. Claims 1-6 and 9-16 are pending.

1. The indicated allowability of the subject matter of previous claims 7 and 8 is withdrawn in view of the newly discovered reference(s) to Koyabu et al (JP 3-134603 A). Rejections based on the newly cited reference(s) follow.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Chamberlain et al (US 6,411,746, previously cited), Lauzon (US 5,671,307, cited by applicant) and Koyabu et al (JP 3-134603 A).

The admitted prior art teaches an optical fiber holding device, comprising: an optical fiber (1) having a grating (2); a heater (3) for heating the grating to a predetermined temperature distribution; a substrate (4) on which the optical fiber and the heater are mounted; wherein the optical fiber is contacted with the heater (see figures 14, 15, and page 1 line 15 - page 3 line 31, of the specification). The system as taught by the admitted prior art as necessarily includes optical circuitry for inputting an

optical signal to the grating and for outputting the optical signal reflected on the grating, since the admitted prior art is designed for use in optical communications systems.

The admitted prior art fails to specifically teach a strip-shaped member, having a rectilinear groove in which the optical fiber is accommodated, a gap formed between a wall surface of the rectilinear groove and the optical fiber, and a gel substance contacting with the optical fiber and filled in the gap; wherein the optical fiber is not contacted with a wall surface of the groove of the strip-shaped member; wherein the gel substance includes a silicon compound; wherein the strip-shaped member is made of quartz.

Chamberlain et al teaches an optical fiber holding device, comprising: an optical fiber (12) having a grating (see column 3, lines 54-59); a strip-shaped member (metal layer 18 and substrate 32, see figures 3 and 4), having a rectilinear groove in which the optical fiber is accommodated (see figures 3 and 4), a gap formed between a wall surface of the rectilinear groove and the optical fiber (the region between the metal layer 18 and the optical fiber device 12, see column 5, lines 17-20); wherein the optical fiber is not contacted with a wall surface of the groove of the strip-shaped member (the region between the metal layer 18 and the optical fiber 12 is filled with the gel, see column 5 lines 18-20); wherein the strip-shaped member is made of quartz (the substrate 32 may be silica, glass, or another material, see column 4 lines 57-58, thus suggesting quartz); (also see figures 3, 4, column 1 lines 5-13, 35-59, column 2 lines 3-6, column 3 lines 50-64, column 4 lines 27-32, column 4 line 54 - column 5 line 24).

In view of Chamberlain et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the admitted prior art, a strip-shaped member, having a rectilinear groove in which the optical fiber is accommodated, a gap formed between a wall surface of the rectilinear groove and the optical fiber; wherein the optical fiber is not contacted with a wall surface of the groove of the strip-shaped member; wherein the strip-shaped member is made of quartz, in order to provide greater protection of the optical fiber and also greater heat control.

The admitted prior art as modified by Chamberlain et al fails to specifically teach a gel substance, which remains soft, contacting with the optical fiber and filled in the gap; wherein the gel substance includes a silicon compound; a Peltier element for keeping a temperature level of the predetermined temperature distribution of the grating at a predetermined level; and a temperature sensor for detecting the temperature of the optical fiber used to control the Peltier element.

Lauzon et al teaches an optical fiber holding device, including: an optical fiber (1) having a grating (2); a gel substance (thermal compound 5, for example, joint compound type 120 from E. G. & G. Wakefield Engineering, Inc., see column 2, lines 56-59), which remains soft (since the joint compound type 120 includes a grease-like material, it will remain soft, also see the cited document "THERMAL COMPOUNDS, ADHESIVES, INTERFACE MATERIALS, HARDWARE, INSTALLATION TOOLS"), contacting with the optical fiber and filled in the gap (the gap between optical fiber 1 and V-shaped groove 4, see figure 2); wherein the gel substance includes a silicon compound (the joint compound type 120 includes a silicone compound); a Peltier

element (6, 7, 10, and 11) for keeping a temperature level of the predetermined temperature distribution of the grating at a predetermined level; and a temperature sensor (thermistor 22 and thermoelectric control unit 24) for detecting the temperature of the optical fiber used to control the Peltier element (see figure 1 and column 2 line 48 - column 3 line 38).

In view of Lauzon et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by the admitted prior art as modified by Chamberlain et al, a gel substance, which remains soft, contacting with the optical fiber and filled in the gap; wherein the gel substance includes a silicon compound; a Peltier element for keeping a temperature level of the predetermined temperature distribution of the grating at a predetermined level; and a temperature sensor for detecting the temperature of the optical fiber used to control the Peltier element, in order to provide good thermal conductivity between the heater and the optical fiber and accurate control of the heater.

The admitted prior art as modified by Chamberlain et al and Lauzon et al fails to specifically teach wherein a positioning mark is provided on the substrate, which is used for positioning the strip-shaped member on the substrate.

Koyabu et al teaches the use of alignment marks for positioning a strip shaped member (1), having a rectilinear groove (2), on a substrate (5) (see figures 1A-1C and the translation of the abstract).

In view of Koyabu et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught

by the admitted prior art as modified by Chamberlain et al, wherein a positioning mark is provided on the substrate, which is used for positioning the strip-shaped member on the substrate, in order to allow high precision positioning of the components (see the translation of Koyabu et al's abstract).

***Allowable Subject Matter***

4. Claims 14-16 have been allowed over the prior art of record.

5. The following is a statement of reasons for allowance: The prior art of record, taken alone or in combination, fails to teach or fairly suggest a method of manufacturing an optical fiber holding device, including: (re claim 14) the steps of filling the gel substance in the groove or the strip-shaped member; accommodating the optical fiber in the groove of the strip-shaped member in which the gel substance is filled; mounting the strip-shaped member in which the gel substance is filled and the optical fiber is accommodated on the substrate on which the heater is mounted; and moving the strip-shaped member on the substrate so as to carry out a positioning of the groove with respect to the heater; (re claim 15) the steps of securing the strip-shaped member on the substrate on which the heater is mounted; filling the gel substance in the groove of he strip-shaped member secured on the substrate; inserting and accommodating the optical fiber in the groove of the strip-shaped member in which the gel substance is filled; and moving the optical fiber on the heater so as to carry out a positioning of the grating with respect to the heater; and (re claim 16) the steps of mounting the optical fiber on the heater which is mounted on the substrate; coating the optical fiber mounted

on the heater with a gel substance; mounting the step-shaped member on the substrate and accommodating the optical fiber in the groove of the strip-shaped member; and moving the strip-shaped member on the substrate so as to carry out a positioning of the grating with respect to the heater.

While the admitted prior art teaches adjusting the optical fiber relative to the heater using positioning marks (see page 1, line 28 - page 3, line 8 of the specification), without the benefit of applicant's teaching, there is no motivation for one of ordinary skill in the art at the time of the invention to combine the prior art of record in a manner so as to create the claimed invention.

### *Response to Arguments*

6. Applicant's arguments with respect to claims 1-6 and 9-13 have been considered but are moot in view of the new ground(s) of rejection. As discussed above, Koyabu et al teaches the use of positioning marks in order to provide high precision alignment of components in an optical fiber holding device.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kato (US 5,853,626) and Kwon et al (US 6,594,426) both teach the use of alignment marks to allow positioning of components (see figure 12B of Kato and figures 4A and 4B of Kwon).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jared J. Fureman
Primary Examiner
Art Unit 2876

August 3, 2006